



Rajit Gadh

director@smartgrid.ucla.edu

Director, UCLA SMERC

<http://smartgrid.ucla.edu>

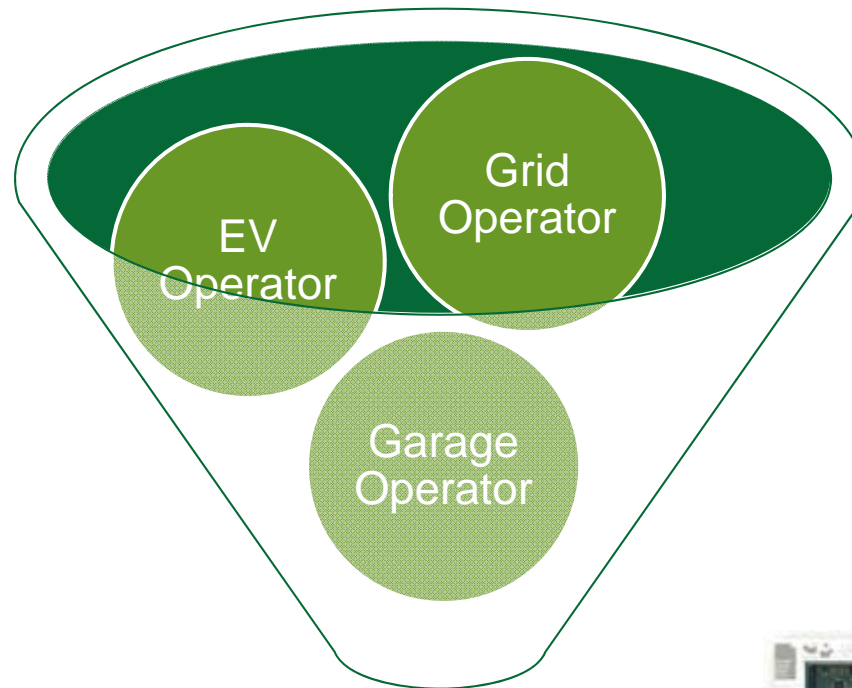
Director, UCLA WINMEC

<http://winmec.ucla.edu>

Learn more about Professor Gadh's work in this YouTube video
about the UCLA Smart Grid Energy Research Center:

http://www.youtube.com/watch?v=j_U9Sb30aEE

Interop in the context of Smart EV Charging – whom does it impact?



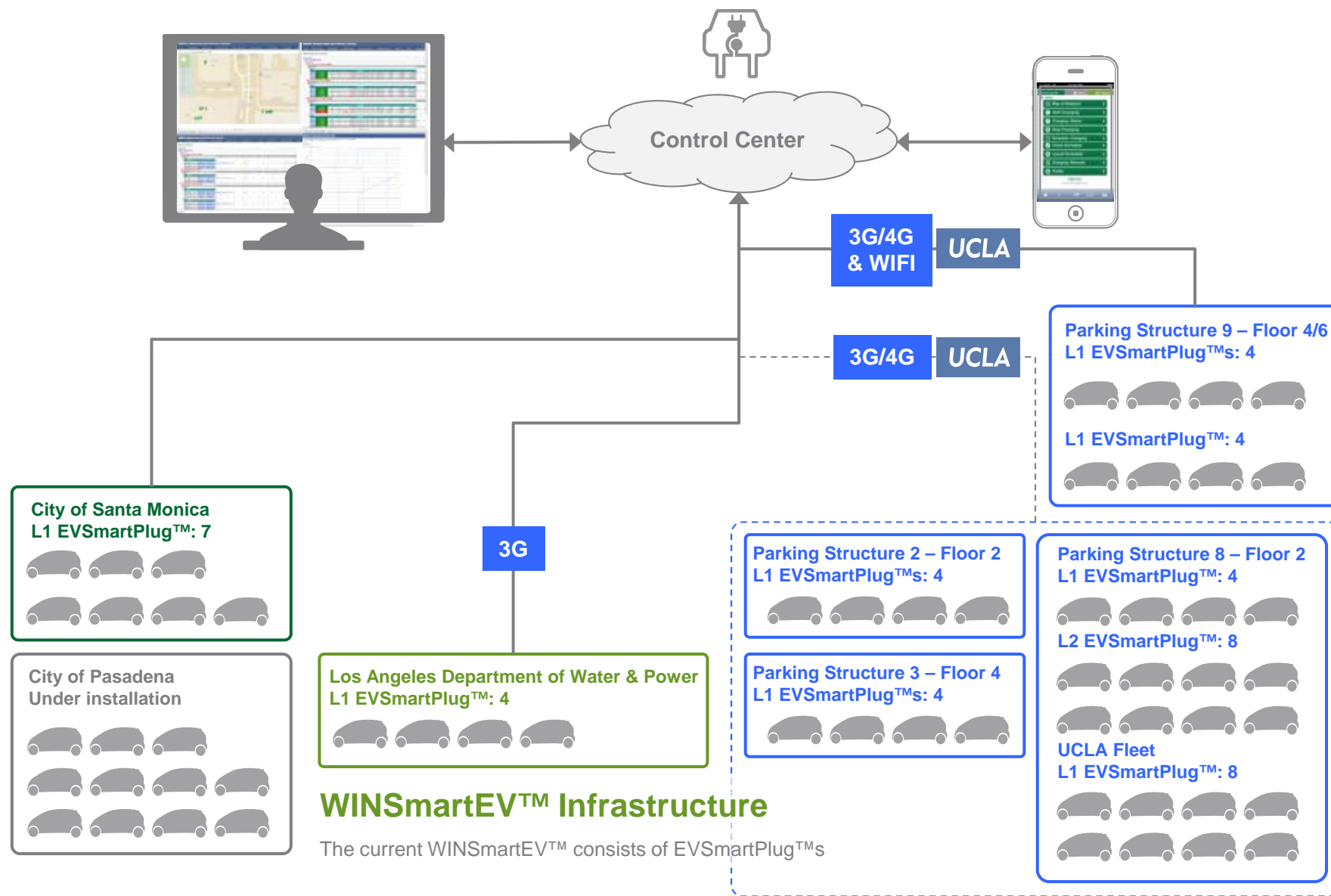
**Smart Charging
within a Smart Grid**



Interop – at the Application Level



Interop – at the Communications Level



Interop – at the Data Gathering Level

Mozilla Firefox

http://wireless.../RTMC/HMC.aspx

SMERC MONITORING AND CONTROL CENTER

Home Chart and Report Charging Record Scheduled Charging Map of Station in Grid Monitoring and Control User Editor Editors Change Password

MONITORING AND CONTROL

Area/City/Stat

- UCLA - Los Angeles, CA

Parking Lot

- PS3, 215 Charles E Young Dr, CA90095

Charging Box													Name	Charge
Stations														
Control	Charging Status	Station Status	Station	Current User	Timestamp	Voltage	Current	Frequency	PF	Active Power	Apparent Power	Energy Consumed		
PS3L4A1	Standby	Off	A1	-	01/09/2013 12:51:18	123.04V	0.00A	59.98Hz	1.00	0.00W	0.00W	41.09kWh	PS3L4	Soc
PS3L4A2	Standby	Off	A2	-	01/09/2013 12:51:21	122.95V	0.00A	59.98Hz	1.00	0.00W	0.00W	7.070kWh		
PS3L4A3	Standby	Off	A3	-	01/09/2013 12:51:25	123.02V	0.00A	59.98Hz	1.00	0.00W	0.00W	19.689kWh		
PS3L4A4	Standby	Off	A4	-	01/09/2013 12:51:29	123.09V	0.00A	59.98Hz	1.00	0.00W	0.00W	24.381kWh		

- PS8, 555 Westwood Plaza, CA90095

Charging Box													Name	Charge
Stations														
Control	Charging Status	Station Status	Station	Current User	Timestamp	Voltage	Current	Frequency	PF	Active Power	Apparent Power	Energy Consumed		
PS8L2A1	Standby	Off	A1	-	01/09/2013 12:51:12	119.86V	0.00A	59.98Hz	1.00	0.00W	0.00W	179.871kWh	PS8L2	Soc
PS8L2A2	Standby	Off	A2	-	01/09/2013 12:51:16	119.60V	0.00A	59.98Hz	1.00	0.00W	0.00W	84.513kWh		
PS8L2A3	Standby	Off	A3	-	01/09/2013 12:51:20	119.51V	0.00A	59.98Hz	1.00	0.00W	0.00W	188.509kWh		
PS8L2A4	Standby	Off	A4	-	01/09/2013 12:51:24	119.60V	0.00A	59.98Hz	1.00	0.00W	0.00W	196.009kWh		

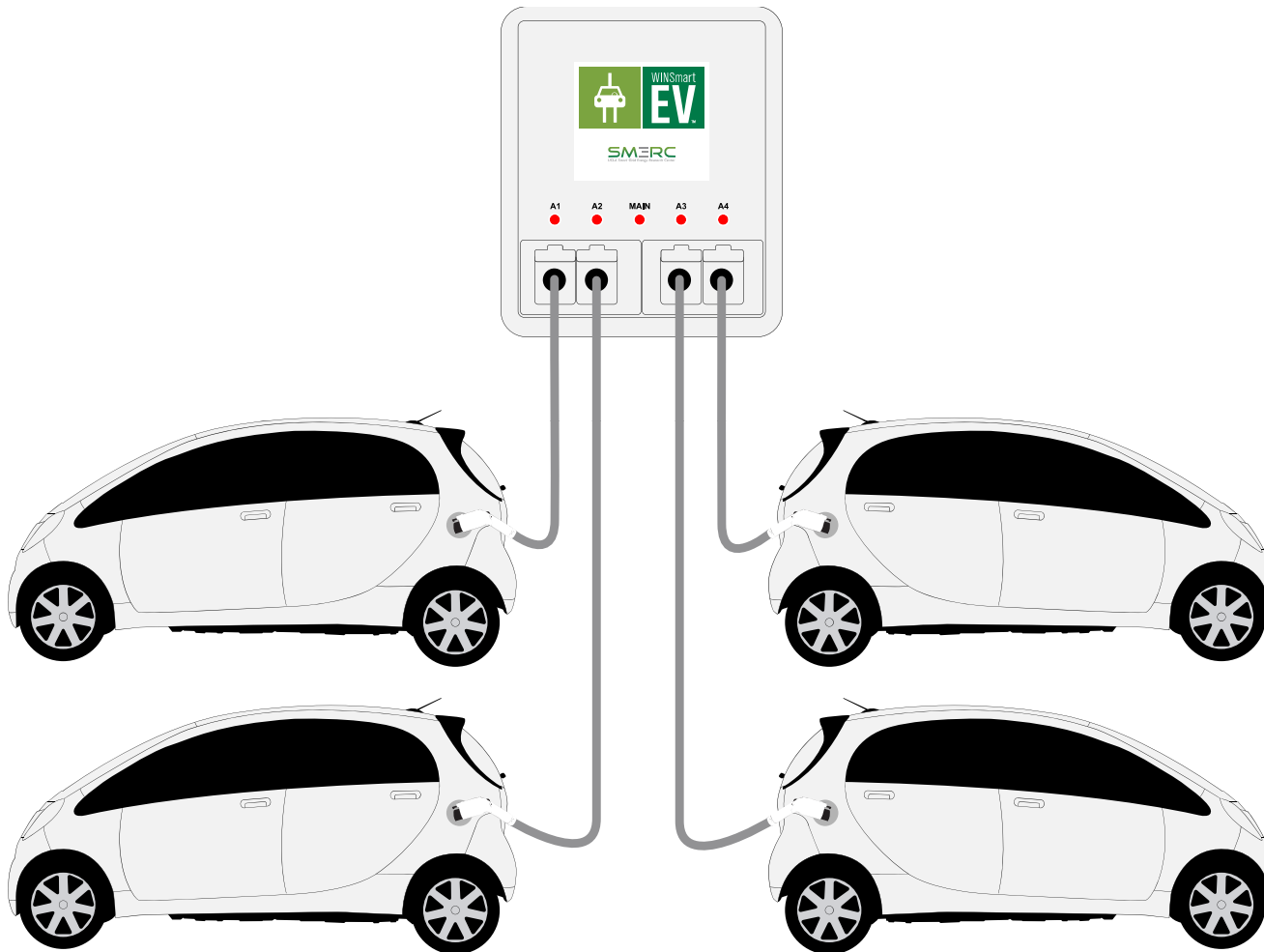
- PS9, 675 Charles E. Young Dr, CA90095

Charging Box													Name	Charge
Stations														
Control	Charging Status	Station Status	Station	Current User	Timestamp	Voltage	Current	Frequency	PF	Active Power	Apparent Power	Energy Consumed		
PS9L4A3	Standby	Off	A3	-	01/09/2013 12:51:10	116.73V	0.00A	59.98Hz	1.00	0.00W	0.00W	69.096kWh	PS9L4	Soc
PS9L4A5	Standby	Off	A5	XY	01/09/2013 12:51:14	116.46V	0.00A	59.98Hz	1.00	0.00W	0.00W	16.510kWh		
PS9L4A6	Charging	On	A6	Z	01/09/2013 12:51:17	116.47V	12.11A	59.98Hz	0.99	1396.68W	1410.45W	174.686kWh		
TestA1	Charging	Off	Test	-	01/09/2013 12:51:21	116.78V	12.37A	59.98Hz	1.57	166343.97W	1443.15W	56.759kWh		

Stations														
Control	Charging Status	Station Status	Station	Current User	Timestamp	Voltage	Current	Frequency	PF	Active Power	Apparent Power	Energy Consumed		
PS9L6A1	Standby	Offline	A1	-	01/09/2013 12:51:29	0.00V	0.00A	0.00Hz	0.00	0.00W	0.00W	0.000kWh	PS9L6	Soc
PS9L6A2	Standby	Offline	A2	-	01/09/2013 12:51:47	0.00V	0.00A	0.00Hz	0.00	0.00W	0.00W	0.000kWh		
PS9L6A3	Standby	Offline	A3	-	01/09/2013 12:52:06	0.00V	0.00A	0.00Hz	0.00	0.00W	0.00W	0.000kWh		
PS9L6A4	Standby	Offline	A4	-	01/09/2013 12:48:23	0.00V	0.00A	0.00Hz	0.00	0.00W	0.00W	0.000kWh		

Copyright - UCLA SMERC EVSmartPlug™ Monitoring and Control Center

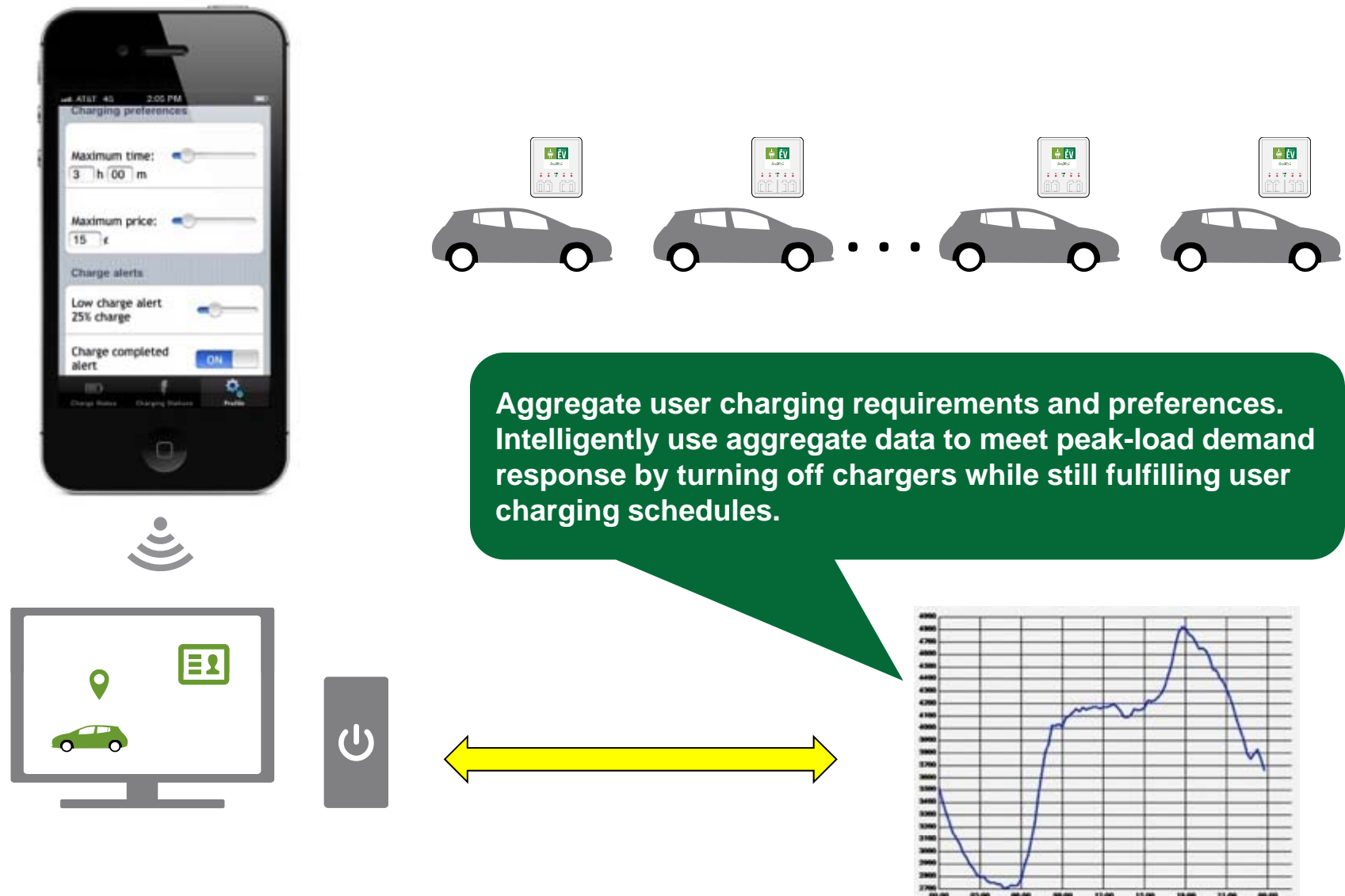
Interop – at the Hardware Power System Level



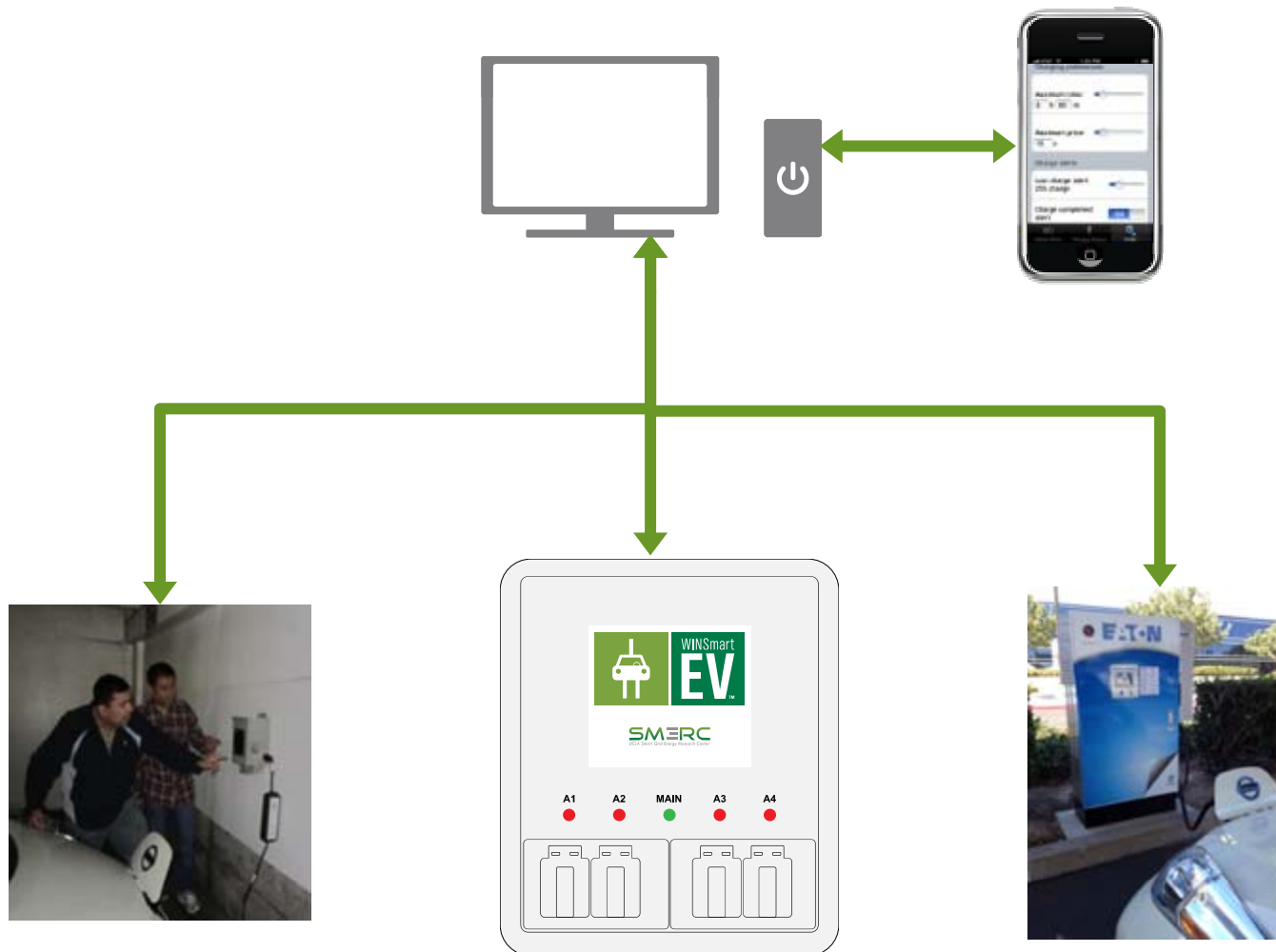
UCLA WINSmartEV™: The Multiplexer – 4 EVs

Patent pending

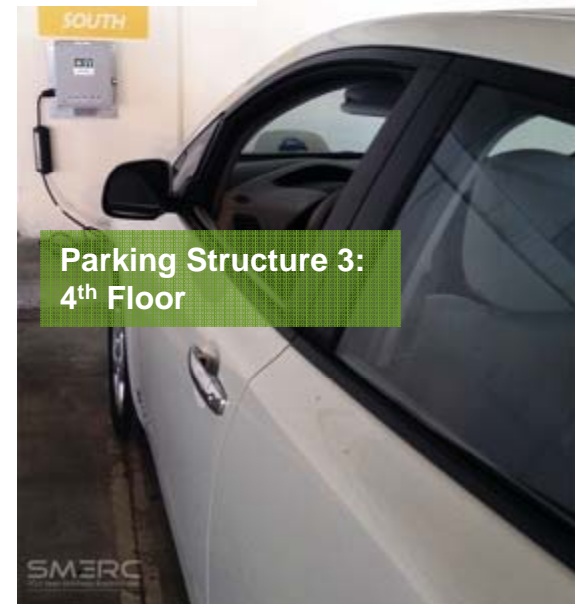
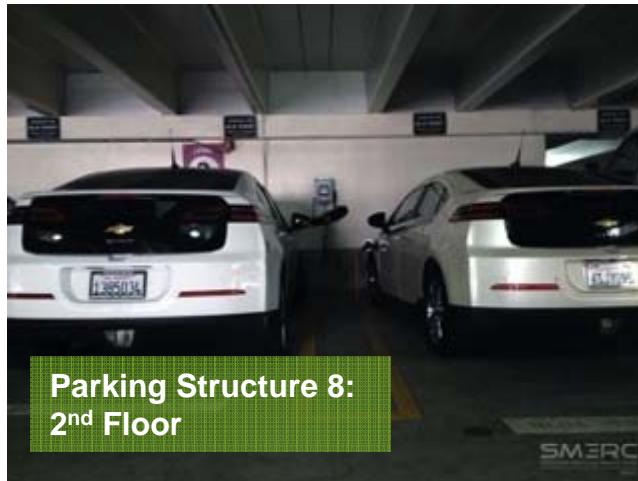
Interop – at the Parking Garage / Aggregate Level



Interop – at the Architecture Level ; to accommodate Level 1, 2, 3 Integration



Interop – at the Infrastructure Level



(UCLA's parking garages as an example)



**Recent SMERC News
And Meetings**

\$60 million LADWP smart grid project to be tested at UCLA, USC — UCLA Mechanical and Aerospace Engineering

\$60 million LADWP smart grid project to be tested at UCLA, USC

www.mae.ucla.edu/news/news-archive/2009/60-million-ladwp-smart-grid-project-to-be-tested-at-ucla-usc

UCLA Engineering
Mechanical and Aerospace Engineering


About News Events Academics Research People Resources

Google Custom Search Search

Home News News Archive 2009 \$60 million LADWP smart grid project to be tested at UCLA, USC LOG IN

\$60 million LADWP smart grid project to be tested at UCLA, USC

December 8, 2009



Rajit Gadh

Excerpted from the Los Angeles Times.

The federal government today awarded Los Angeles a \$60-million grant to help modernize the city's electrical power system.

The money will be used for "smart grid" demonstration projects at USC and UCLA. The projects will allow the city's Department of Water and Power, the largest municipal utility in the nation, to use advanced meters and other technology at the universities to chart how power is being consumed, forecast demand and potential outages, and seek ways to reduce energy use.

Please read the full Los Angeles Times article [here](#).

Also, please read the article at www.engineer.ucla.edu.

UPDATE: On 1/14/10, UCLA Today published an in-depth article on Smart Grid.

[Print this](#)

\$60 million LADWP smart grid project to be tested at UCLA, USC

Pirouz Kavehpour wins the prestigious Gallery of Fluid Motion Exhibit

Grag Carmar, engineers, doctors at UCLA develop novel material that could help fight arterial disease

Chih-Ming Ho receives National Taiwan University's distinguished alumnus award

Chris Lynch new ASME Aerospace Division Executive Committee chair

Laurent Pilon awarded 2009 JQSRT Young Scientist Award in Radiation Transfer

Katie Bulgrin is a SEE-LA Fellow

Ann Karagozan selected to chair major study for the Air Force Scientific Advisory Board



Join Us for a Thought Leadership Discussion:
Plug-and-Play: Cities on Smart Grid

Hosted By:



December 2, 3:00 – 4:30 PM
 LA Center Studios
 1201 West 5th Street
 Los Angeles, CA 90017

Smart Grid technology will fundamentally change how energy is priced and how we think about and use energy, both at work and at home. Join us as we examine the path that cities—the first line of Smart Grid development—are taking to a smarter, greener and more efficient grid.

An esteemed panel of government officials, business executives and leading industry experts, moderated by U.S. News & World Report, will discuss the immediate and long-term challenges for utilities, technology providers and consumers in transitioning to a reliable, cost-effective and smarter network. Panelists will share insights on real-life, city-specific applications, smart grid pilot programs, lessons learned and “one size does not fit all” barriers, as well as deployment and integration of technologies, the role of education as new networks are rolled out and finding ways to get smart grids financed while keeping millions of consumers and business customers satisfied.



NATIONAL
 ISSUES
 BRIEFING

Moderated by:
Brian Kelly
 Editor of U.S. News & World Report

Panel members include:



Lee Kanon Alpert
 President, Board of Commissioners
 Los Angeles Department of
 Water and Power



Dr. Rajit Gadhi
 Founding Director
 UCLA Smart Grid Energy
 Research Center



Kevin Dasso
 Senior Director,
 Smart Grid & Technology
 Integration
 Pacific Gas and Electric
 Company



Also Invited:
Mayor Antonio R. Villaraigosa
 City of Los Angeles



The Mayor of the City of Los Angeles

The Mayor of the City of Los Angeles

mayor.lacity.org/PressRoom/LACITYP_012264

Go To: Content | Footer | Contact Info





HOME MEET THE MAYOR ISSUES PRESS ROOM SERVICES OUR CITY

HOME > PRESS ROOM


Sign Up to see what your friends like.

MAYOR VILLARAIGOSA LEADS ELECTRIC VEHICLE 101 WORKSHOP

Hosted by the City of Los Angeles, the SoCal EV 101 workshop was created to bring together local cities, utilities and environmental agencies to discuss regional electric vehicle readiness.

LOS ANGELES – Mayor Antonio Villaraigosa hosted the first SoCal EV Electric Vehicle 101 Workshop at UCLA today to bring together local cities, utilities and environmental agencies to discuss how Los Angeles will lead the region in electric vehicle readiness.

"As the car capital of the world, Los Angeles has a responsibility — both civic and economic — to prepare itself to be the electric car capital of the world," Mayor Villaraigosa said. "And by leveraging our unparalleled resources — our world class universities and growing clean tech economy — Los Angeles will lead the charge for preparing for electric vehicles."

The EV Workshop is one benchmark deliverable of Los Angeles' Electric Vehicle strategy that was announced in 2009. It is one of the many initiatives included in the collaboration between the Southern California region on EV readiness. In this announcement, the Mayor also pledged that Los Angeles would be the regional leader in this collaborative.

"We need a region-wide network of charging stations if we hope to see large-scale deployment of, and resulting environmental benefits from, electric vehicles," said Judith Mitchell, Rolling Hills Estates Councilwoman and AQMD Governing Board Member.

The day-long event, designed to foster regional collaboration and preparation for plug-in vehicles, was co-hosted by the Mayor's Office, the Los Angeles Department of Water and Power, Southern California Edison, South Coast Air Quality Management District, the County of Los Angeles, and the UCLA Office of the Vice Chancellor for Research.

"The SoCal EV Consortium is an important new endeavor for Southern California," said Rajit Gadh, director of UCLA's new Smart Grid Energy Research Center and its affiliated UCLA SG-EV Technology Program. "With a new generation of electric vehicles coming online soon, the consortium will provide to be a significant development in a region that brings complementary capabilities to technology programs such as ours in helping us as a community to prepare for an exciting new market."

"By acting regionally, we are also acting strategically. Because as we all know, we are all neighbors in the Southern California region, connected by a vast network of freeways and roads," Mayor Villaraigosa said. "By working together as a region, we are leading the charge for EV owners to be able to drive and plug-in seamlessly throughout the region."

Contact: Rachel Kruer 213-978-0741



Proud supporter of...



OTHER HIGHLIGHTS

Popular Services | All Services
Stop Abuse From Existing (S.A.F.E.)

UCLA Today: Campus parking lots become 'living labs' for electric car research

Campus parking lots become 'living labs' for electric car research

Jul 25, 2013 | 09:30 UCLA Home UCLA Newsroom Contact Us About Us Advertising Inquiries

UCLA Today

Faculty and Staff News

Search UCLA Today Go Advanced Search

Home

- All Stories
- Top Stories
- People
- Voices
- Around Campus
- Faculty Bulletin Board
- Archives

Contact Info

Quick Links

- Faculty Resources
- Human Resources
- News
- UCOP at Your Service
- UCLA Sports
- UCLA Health Care
- UCLA on YouTube
- UCLA on Facebook
- UCLA on iTunes U

UCLA Today • All Stories Share:

Jul 15, 2013 • By Alexander Duffy/UCLA Henry Samueli School of Engineering and Applied Science Print this Page Mail this Page

Campus parking lots become 'living labs' for electric car research

When we think of a lab, we might imagine scientists in white coats and goggles pouring chemicals into vats or technicians in clean suits putting together microchips. Hear the words "living lab," and we might imagine researchers viewing tiny creatures under microscopes in a biological sciences research building. Professor Rajit Gadh's living lab, however, is in five UCLA parking lots, charging electric vehicles (EVs) and sending data back to UCLA's Smart Grid Energy Research Center (SMERC), which Gadh directs. His research is paving the way for an expanding world of EVs.

On a recent visit to Level 4 of Parking Structure 9, Gadh, a professor of mechanical and aerospace engineering, pointed out a box marked "EVSmaRTPlug" hanging from a wall. Two EVs are attached via thick electric cables. The box is a smart communications and control device, part of the WINSmart.EVNetwork, and it is controlled by a mobile app developed by SMERC.

"This mobile app shows the system informing the user as to how many spots are available in Parking Lot 9," Gadh said. "It says there is a total of eight parking outlets and four available. We monitor the energy consumption on this box periodically and send the data back to the control center." Among the data collected are information on the particular vehicles being charged — one may require 12 amperes of power, while another needs 20 amperes — as well as the time of day drivers arrive and leave, information that could help electric grid operators determine variable pricing based on demand.

Sign Up for UCLA Today Headlines by E-mail

Sign Up for Our RSS

Contribute News Tips

UCLA Today

A sovereign wealth fund can save UK from market meltdown

Obama's former aide shares glimpses of life with president

The promise of stem cells

[View All Stories](#)

UCLA Newsroom

Hong Kong businessman makes largest single gift from Asia to UCLA

The promise of stem cells

UCLA Headlines July 24, 2013

[Visit UCLA Newsroom](#)



Rajit Gadh

Professor of Engineering & Director

gadh@ucla.edu